Microsoft

Operating System

Bulk Import and Export to the Active Directory

Beta 3 Technical Walkthrough

Abstract

This paper introduces batch administration of the Microsoft® Windows® 2000 Active Directory™ directory service, using both the LDAP Data Interchange Format (LDIF) utility and a simple program you will write using the Microsoft Visual Basic® Scripting Edition programming system (VBScript).

You will be able to export, import, and modify objects such as users, contacts, groups, servers, printers, and shared folders, using these mechanisms.

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INTRODUCTION

This paper introduces batch administration of the Microsoft® Windows® 2000 Active Directory™ directory service, using both the LDAP Data Interchange Format (LDIF) utility and a simple program you will write using the Microsoft Visual Basic® Scripting Edition programming system (VBScript).

You will be able to export, import, and modify objects such as users, contacts, groups, servers, printers, and shared folders, using both of these mechanisms.

Prerequisites

You must have installed the Beta 3 release of the Windows 2000 Server operating system (including the Active Directory) on a server in your network. You can then run the administration tools from the server or from a workstation computer running the Beta 3 release of the Windows 2000 Professional operating system.

The administration tools are installed by default on all Windows 2000 domain controllers. The LDIFDE utility described in this walkthrough is installed by default on servers, and can be freely copied to any Windows 2000 workstation. The VBScript programs that you will create can be run from either servers or workstations.

WALKTHROUGH SCENARIOS

In this walkthrough, you will perform the following tasks:

- **Perform batch operations using the LDIFDE utility**—Export users from the Marketing organizational unit (OU) in the Antipodes domain into a file format compatible with the LDIF standard format. Perform a batch modification of all the users in the Marketing OU. Use LDIF to create a new user and delete a user.
- **Perform batch operations using ADSI and VBScript**—Export users from the Marketing OU in the Antipodes domain into a text file, using a script written with ADSI and VBScript. Use VBScript to perform a batch modification of all the users in the Marketing OU. Use VBScript to create a new user and delete a user.

USING THE LDIFDE UTILITY

The LDAP Data Interchange Format (LDIF) is a draft Internet standard for a file format that can be used for performing batch operations on directories that conform to the LDAP standards. LDIF can be used to export and import data, allowing batch operations such as add, create, and modify to be performed on the Active Directory. A utility program called LDIFDE is included in Windows 2000 to support batch operations based on the LDIF standard.

Using LDIF to Export All Objects in the Marketing OU

You can use LDIFDE to export all objects in the Marketing OU. This example searches the organizational unit for a certain objects, and creates a file containing the names of those objects.

To export all objects in the Marketing OU

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory
2. Start a Command prompt. From the **Start** menu, point to **Programs**, and then click **Command Prompt**.
3. At the command prompt, type:

```
ldifde -f marketing.ldif -s koala -d
"ou=Marketing,dc=antipodes,dc=com" -p subtree –r
"(objectCategory=CN=Person,CN=Schema,CN=Configuration,DC=anti
podes,DC=com)"
```

This creates a LDIF file named *Marketing.ldif*, by connecting to a server named *Koala* and executing a subtree search of the Marketing OU for all objects of the category *Person*. (See Figure 1.)

Note that *objectCategory* is an indexed attribute designed to enhance search performance.

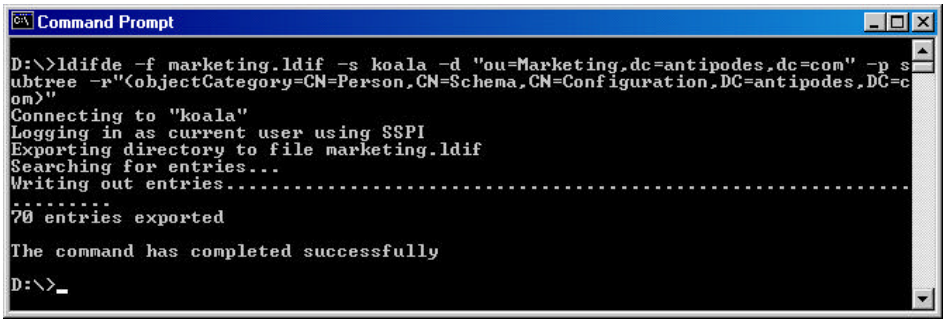

Figure 1. Creating an LDIF file

You can use this LDIF file to perform a batch import of all the objects from the Marketing OU into any other LDAP-compatible directory. Some attributes may not be applicable to other implementations of LDAP. In particular, if you use this mechanism to import the objects into another Active Directory, some attributes need

to be omitted because they are automatically generated during object creation. These attributes are:

- objectGUID
- usnCreated
- usnChanged
- whenCreated
- whenChanged

For example, the LDIFDE command that is used to omit these attributes is:

```
ldifde -f marketing.ldif -s koala –d
"ou=Marketing,dc=antipodes,dc=com" -p subtree –r
"(objectCategory=CN=Person,CN=Schema,CN=Configuration,DC=antipode
s,DC=com)" –o
"uSNChanged,uSNCreated,whenChanged,whenCreated,objectGUID"
```

Using LDIF to Modify All Objects in the Marketing OU

In this example, the entire Marketing organization has moved to a new office address. You use LDIF to perform a batch modification for all user objects in the Marketing organization by altering the state, street, locality, and postal code attributes.

To modify all objects in the Marketing OU

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory
2. Start a Command prompt. From the **Start** menu, point to **Programs**, and then click **Command Prompt**.
3. At the command prompt, type the following command to extract the required entries:

   ```
   ldifde -f marketing.ldif -s koala -d
   "ou=Marketing,dc=antipodes,dc=com" -p subtree –r
   "(objectCategory=CN=Person,CN=Schema,CN=Configuration,DC=anti
   podes,DC=com)" –l”l,st,streetAddress,,postalCode”
   ```

4. Use a text editor, such as Notepad, to edit the LDIF file Marketing.ldif. Modify each entry so that it is similar to that shown in Figure 2.

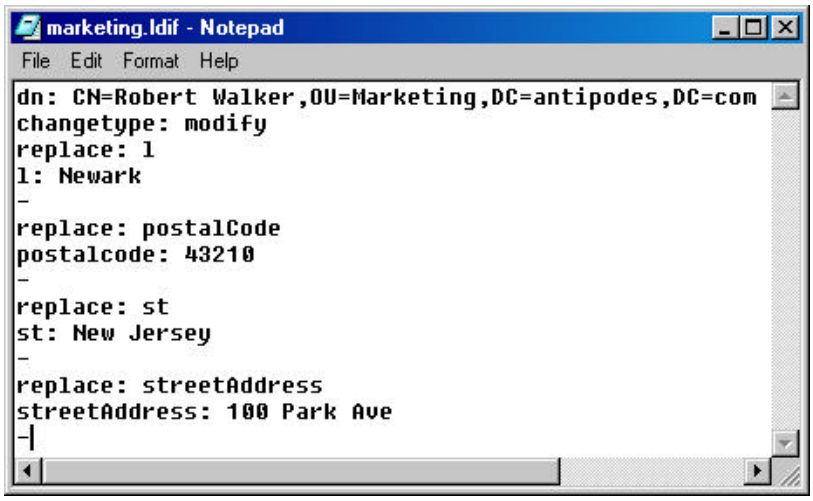

Figure 2. Editing attributes for a move

5. Run LDIFDE to import the modifications into the Active Directory. At the command prompt, type the following: command, and then press Enter. (See Figure 3.)

```
ldifde –i -f marketing.ldif -s koala -d
"ou=Marketing,dc=antipodes,dc=com"
```

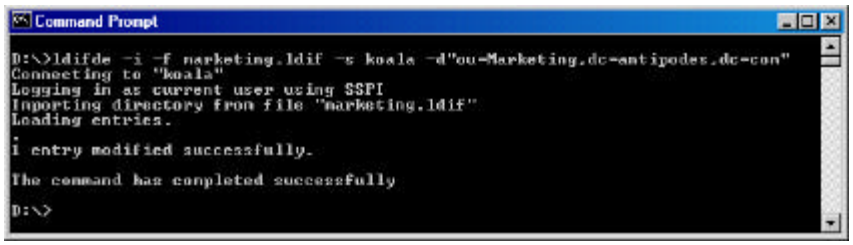

Figure 3. Importing modifications into the Active Directory

6. Confirm that the entries have been modified by checking the Active Directory Users and Computers snap-in.

For further information on using LDIFDE, type LDIFDE /? at the command prompt.

Note There is another utility called CSVDE that performs that same functions as LDIFDE, but uses a comma-separated file format. The CSV file format is supported by applications such as Microsoft Excel.

For further information on the LDIF draft standard, see the IETF draft specification: Draft-good-ldap-ldif-01.txt, which can be found at: ftp.isi.edu/internet-drafts.

Using LDIF to Create a New User

In this example, you use LDIF to add a new user named Fred Smith to the Marketing organizational unit.

To create a new user

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Start a text editor, such as Notepad, and create a new text file named *Newuser.ldif*.
3. Edit the LDIF file Newuser.ldif, and add the following text (see Figure 4):

```
dn: CN=Fred Smith,OU=Marketing,DC=antipodes,DC=com
changetype: add
cd: Fred Smith
objectClass: user
samAccountName: FSmith
givenName: Fred
sn: Smith
```

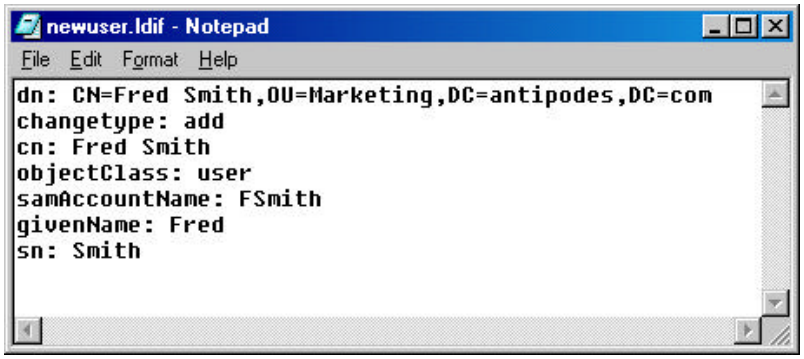

Figure 4. Adding Fred Smith to the Marketing OU

4. Save the LDIF file.
5. Run LDIFDE to import the new user into the Active Directory. From the**Start** menu, point to **Programs**, and then click **Command Prompt**. Type the following command, and then press Enter. (See Figure 5.)

```
ldifde –i -f newuser.ldif -s koala -d
"ou=Marketing,dc=antipodes,dc=com"
```

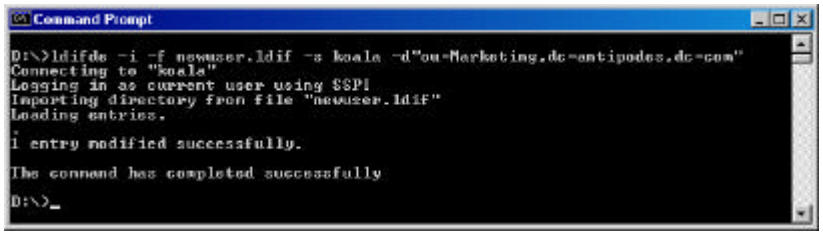

Figure 5. Adding a new user

6. Confirm that the new user has been created by checking the Active Directory Users and Computers snap-in.

Using LDIF to Delete a User

In this example, you use LDIF to delete the user named Fred Smith from the Marketing OU.

To delete the user

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Start a text editor, such as Notepad, and create a new text file named *Deluser.ldif*.
3. Edit the LDIF file Deluser.ldif, and add the following text (see Figure 6):
4. Edit the LDIF file Newuser.ldif, and add the following text (see Figure 4):

```
dn: CN=Fred Smith,OU=Marketing,DC=antipodes,DC=com
changetype: delete
```

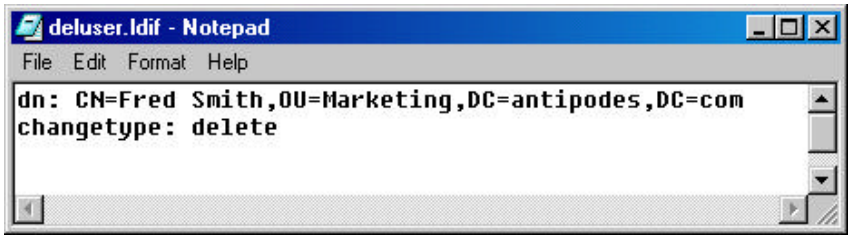

Figure 6. Deleting Fred Smith from the Marketing OU

5. Run LDIFDE to delete the user from the Active Directory. At the command prompt, type the following command, and then press Enter. (See Figure 7.)

```
ldifde –i -f deluser.ldif -s koala -d
"ou=Marketing,dc=antipodes,dc=com"
```

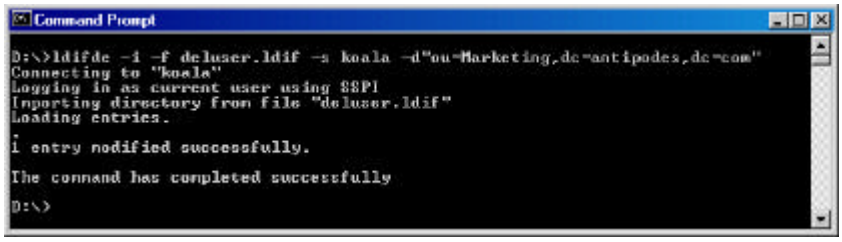

Figure 7. Deleting a user

6. Confirm that the user has been deleted by checking the Active Directory Users and Computers snap-in.

USING VBSCRIPT AND ADSI

Active Directory Services Interfaces (ADSI) makes it easy to develop directory-enabled applications. In conjunction with the Windows Scripting Host, batch directory operations can be scripted using VBScript or Java. In this walkthrough, the procedures that were described in the previous section (which used LDIF) are performed using simple applications written in VBScript.

Please note that these scripts do not include any error checking, nor are they meant to provide a programmer's reference to VBScript and ADSI. For further information about VBScript and ADSI, see the Microsoft Developer Network Web site at http://www.msdn.microsoft.com.

Using VBScript to Export All Objects in the Marketing OU

In this example, you use a text editor such as Notepad to create a VBScript program. The script searches the Marketing OU and creates a text file that lists all of the user objects and a subset of their attributes.

To create the export script

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Copy the following text into your text editor:

```
Sub EnumerateUsers(oObject)
Dim oUser
For Each oUser in oObject
Select Case oUser.Class
 Case "user"
 if Not IsEmpty(oUser.distinguishedName) then
OutPutFile.WriteLine "dn: "& oUser.distinguishedName
 if Not IsEmpty(oUser.name) then OutPutFile.WriteLine "name:
" & oUser .name
 if Not IsEmpty(oUser.st) then OutPutFile.WriteLine "st: " &
oUser.st
 if Not IsEmpty(oUser.streetAddress) then
OutPutFile.WriteLine "streetAddress: " & oUser.streetAddress

 OutPutFile.WriteLine

Case "organizationalUnit" , "container"
 EnumObjects(oUser)
End select
Next
End Sub

Dim oDomain
Dim OutPutFile
Dim FileSystem

Set FileSystem =
WScript.CreateObject("Scripting.FileSystemObject")
Set OutPutFile =
FileSystem.CreateTextFile("marketing.txt",True)
Set
oDomain=GetObject("LDAP://OU=Marketing,DC=antipodes,DC=com")
EnumerateUsers(oDomain)
OutPutFile.Close
Set FileSystem = Nothing
Set oDomain = Nothing
MsgBox "Finished"
WScript.Quit
```

3. Save the file as *Export.vbs*.
4. At the command prompt type

   ```
   export.vbs
   ```

5. Press Enter. This creates a file named *Marketing.tx*t, which contains a list of users and some of their attributes, such as distinguished name, name, state, and street address.

With appropriate modification, this script can be used with any application that supports COM and the Visual Basic scripting language. Such applications include Microsoft Visual Basic, Microsoft Excel, and Microsoft Access

Using VBScript to Modify All Objects in the Marketing OU

In this example, the Marketing organization has moved to a new office address. A simple VBScript program is used to perform a batch modification for all user objects in the Marketing organization.The script alters the state, street, locality, and postal code attributes.

To create the script and modify the objects

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Copy the following text into your text editor:

```
Sub ModifyUsers(oObject)
Dim oUser
For Each oUser in oObject
Select Case oUser.Class
 Case "user"
  oUser.Put "st","New Jersey"
  oUser.Put "streetAddress","10A Riverside Dve"
  oUser.Put "postalCode","43210"
  oUser.Put "l","Newark"
  oUser.SetInfo
Case "organizationalUnit" , "container"
 ModifyUsers(oUser)
End select
Next
End Sub

Dim oDomain
Set
oDomain=GetObject("LDAP://OU=Marketing,DC=antipodes,DC=com")
ModifyUsers(oDomain)
Set oDomain = Nothing
MsgBox "Finished"
WScript.Quit
```

3. Save the file as *Modify.vbs*.
4. At the command prompt type

```
modify.vbs
```

5. Press Enter. This processes all objects in the Marketing organizational unit and modifies all users, altering the state, street address, postal code, and locality attributes.
6. Confirm that the entries have been modified by checking the Active Directory Users and Computers snap-in.

Using VBScript to Create a User Object in the Marketing OU

In this example, you use VBScript to add a new user to the Marketing organization. This example illustrates how easy it is to use ADSI and VBScript to programmatically access the directory. Note that in this example, only a limited set of attributes are configured during the user creation.

To create the script and add the user

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Copy the following text into your text editor:

```
Dim oDomain
Dim oUser

Set
oDomain=GetObject("LDAP://OU=Marketing,DC=antipodes,DC=com")
Set oUser = oDomain.Create("user","cn=John Smith")
oUser.Put "samAccountName","JSmith"
oUser.Put "givenName","John"
oUser.Put "sn","Smith"
oUser.Put "userPrincipalName","jsmith@antipodes.com"
oUser.SetInfo
MsgBox "User created " & oUser.Name
Set oDomain = Nothing
MsgBox "Finished"
WScript.Quit
```

3. Save the file as *Adduser.vbs*.
4. At the command prompt, type

   ```
   adduser.vbs
   ```

5. Press Enter. This creates a new user in the Marketing OU. The user's name is John Smith.
6. Confirm that the user has been created by checking the Active Directory Users and Computers snap-in. You may want to enable the account, reset the password, or set other attributes, using the snap-in.

Using VBScript to Delete a User

In this example, you use VBScript to delete a user from the Marketing organization.

To create the script and delete the user

1. Log on as an administrator. If you log on using an account that does not have administrative privileges, you may not be able to perform export and import operations on the Active Directory.
2. Copy the following text into your text editor:

```
Dim oDomain
Set
oDomain=GetObject("LDAP://OU=Marketing,DC=antipodes,DC=com")
oDomain.Delete "user","CN=John Smith"
MsgBox "User deleted"
Set oDomain = Nothing
MsgBox "Finished"
WScript.Quit
```

3. Save the file as *Deluser.vbs*.
4. At the command prompt, type

   ```
   deluser.vbs
   ```

5. Press Enter. This deletes the user John Smith from the Marketing OU.
6. Confirm that the user has been deleted by checking the Active Directory Users and Computers snap-in.

FOR MORE INFORMATION

For the latest information on Microsoft Windows 2000 network operating system, visit our World Wide Web site at http://www.microsoft.com/windows/server/ and the Windows NT Server Forum on the Microsoft Network (GO WORD: MSNTS).

For the latest information on the Windows 2000 Beta 3, visit the Web site at http://ntbeta.microsoft.com.

Before You Call for Support

Please keep in mind that Microsoft does not support these walkthroughs. The purpose of the walkthroughs is to facilitate your initial evaluation of the Microsoft Windows 2000 features. For this reason, Microsoft cannot respond to questions you might have regarding specific steps and instructions.

Reporting Problems

Problems with Microsoft Windows 2000 Beta 3 should be reported through the appropriate bug reporting channel and alias. Please make sure to adequately describe the problem so that the testers and developers can reproduce it and fix it. Refer to the ReleaseNotes included on the Windows 2000 Beta 3 distribution media for some of the known issues.